

REMARKS/ARGUMENTS

This communication responds to the Office Action of June 14, 2005. In this communication, Applicant has amended claims 10-13, and 15-19; canceled claims 1-9, 14 and 20; and add new claim 21. The amendment and the new claim are supported by the specification at least in Figure 3D and on page 10, lines 13-23. No new matter is introduced. Claims 10-13, 15-19 and 21 are pending. Allowance of all pending claims is respectfully requested.

Rejections Under 35 U.S.C. § 102

Claims 1-3, 5, 7-10 and 13-20 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,007,309 to Hartley (hereinafter "Hartley") for reasons stated on page 3 of the Office Action. Applicant respectfully traverses the rejection.

For anticipation under 35 U.S.C. §102, the reference "must teach every aspect of the claimed invention either explicitly or impliedly. Any feature not directly taught must be inherently present." (MPEP §706.02, IV. Distinction between 35 U.S.C. 102 and 103, page 700-21). The Federal Circuit has held that prior art is anticipatory only if every element of the claimed invention is disclosed in a single item of prior art in the form literally defined in the claim (*Jamesbury Corp. v. Litton Indus. Products*, 756 F.2d 1556, 225 USPQ 253 (Fed. Cir. 1985); *Atlas Powder Co. v. Du Pout*; 750 F.2d 1569, 224 USPQ 409 (Fed. Cir. 1984); *American Hospital Suppl v. Travenol Labs*, 745 F.2d 1, 223 USPQ 577 (Fed. Cir. 1984).

Independent claim 21 of the instant application relates to a microfluidic structure comprising a substrate having an upper microchannel and a lower microchannel defined in the substrate, a first electrode located in an elastic layer separating a lengthwise portion of the upper and the lower microchannels, a second electrode located in the upper microchannel opposite the first electrode, and a third electrode located in the upper microchannel opposite the first electrode. The first electrode is capable of moving toward the second electrode and forming a seal with the electrode in response to a voltage difference between the first electrode and the second electrode. The first electrode is also capable of moving toward the third electrode and forming a seal with the electrode in response to a voltage difference between the first electrode and the third electrode.

Hartley generally describes micromachined pumps having a microchannel covered with a series of electrically conductive stripes positioned transverse to the channel. Application of a sequential voltage to the series of strips causes a region of closure to progress down the channel to achieve a pumping action. In Hartley, the micromachined

pump works in a single channel. Hartley does not teach or suggest “a microfluidic structure comprising: a substrate, an upper microchannel defined in the substrate; a lower microchannel defined in the substrate; a first electrode located in an elastic layer separating a lengthwise portion of the upper and the lower microchannel....” Nor does Hartley teach or suggest “...a second electrode located in the upper microchannel opposite the first electrode; and a third electrode located in the lower microchannel opposite the first electrode, wherein the first electrode is capable of moving toward the second and forming a seal with the second electrode in response to a voltage difference between the first electrode and the second electrode, and wherein the first electrode is also capable of moving toward the third electrode and forming a seal with the third electrode in response to a voltage difference between the first electrode and the third electrode.”

Accordingly, Applicant respectfully submits that Hartley does not anticipate independent claim 21 because Hartley does not teach every aspect of the claimed invention. Applicant further submits that claims 10, 13, and 15-19 are patentable over Hartley because they depend from claim 21 and because they recite additional patentable subject matter. Withdrawal of the 35 U.S.C. §102(b) rejection to claims 10, 13 and 15-19 is respectfully requested. Claims 1-3, 5, 7-9, 14 and 20 have been canceled and the rejection to these claims is now moot.

Rejections Under 35 U.S.C. § 103

Claims 4 and 12 stand rejected under 35 U.S.C. § 103(a) over Hartley in view of U.S. Patent No. 5,271,724 to Lintel (hereinafter “Lintel”) for reasons stated on page 3 of the Office Action. Claims 6 and 11 stand rejected under 35 U.S.C. § 103(a) over Hartley in view of U.S. Patent No. 6,435,840 to Sharma et al. (hereinafter “Sharma”) for reasons stated on page 4 of the Office Action. Applicant respectfully traverses these rejections.

To establish a *prima facie* case of obviousness ... the prior art reference (or references when combined) must teach or suggest all of the claim limitations. *In re Vaeck*, 947 F.2d 488 (Fed. Cir. 1991) and *MPEP* § 2142. In order to combine references, the following tenets of patent law must be adhered to: (A) The claimed invention must be considered as a whole; (B) The references must be considered as a whole and must suggest the desirability and thus the obviousness of making the combination; (C) The references must be viewed without the benefit of impermissible hindsight vision afforded by the claimed invention, and (D) Reasonable expectation of success is the standard with which obviousness is determined. *Hodosh v. Block Drug Co., Inc.*, 786 F.2d 1136, 1143 n.5 (Fed. Cir. 1986).

Claims 11 and 12, as amended, depend from new claim 21. As discussed above, Hartley does not teach or suggest every limitation of claim 21.

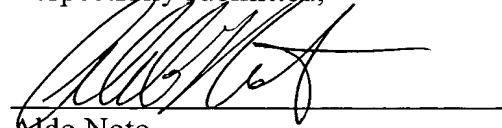
Lintel and Sharma do not cure the deficiency of Hartley. Lintel generally describes a valve in a micropump. The valve has a position detector to detect by contact the position of the valve and hence reveal any malfunction. Sharma generally describes a micropump having a lower electrode formed from a plurality of uniformly spaced conductive panels, and an upper electrode is consisting of a single sheet of conductive material. Neither Lintel nor Sharma teach or suggest “a microfluidic structure comprising: a substrate, an upper microchannel defined in the substrate; a lower microchannel defined in the substrate; a first electrode located in an elastic layer separating a lengthwise portion of the upper and the lower microchannel...” Moreover, Lintel and Sharma do not teach or suggest “...a second electrode located in the upper microchannel opposite the first electrode; and a third electrode located in the lower microchannel opposite the first electrode, wherein the first electrode is capable of moving toward the second and forming a seal with the second electrode in response to a voltage difference between the first electrode and the second electrode, and wherein the first electrode is also capable of moving toward the third electrode and forming a seal with the third electrode in response to a voltage difference between the first electrode and the third electrode.” For this reason alone, the combination of Hartley with Lintel or Sharma does not render claim 11 or 12 obvious. In addition, the cited references do not suggest the desirability and thus the obviousness of making the combination. The cited references also fail to provide a reasonable expectation of success.

Accordingly, Applicant respectfully submits that Hartley, Lintel and Sharma, individually or in combination, do not render claims 11 and 12 obvious. Withdrawal of the 35 U.S.C. §103(a) rejection to claims 11 and 12 is respectfully requested. Claims 4 and 6 have been canceled and the rejection to these claims is now moot.

In view of the foregoing remarks, favorable reconsideration of all pending claims is requested. Applicants respectfully submit that this application is in condition for allowance and request that a notice of allowance be issued. Should the Examiner believe that anything further is required to expedite the prosecution of this application or further clarify the issues, the Examiner is requested to contact Applicants' attorney at the telephone number listed below.

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Respectfully submitted,



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